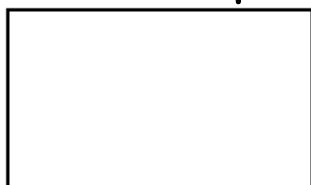


Field Trip



Unit Rectangles

Howie's Pizza



Joe's Flowers

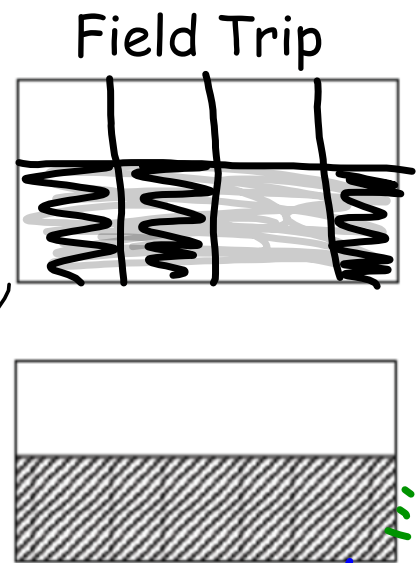


spare

Garden Road Middle School is planning a field trip for students to attend a conference about careers in mathematics. Half of the students signed up to go on the field trip, but only three-fourths of those students brought back their permission slips to attend the field trip. Explore what fraction of students in the school will be able to go on the field trip.

The entire school's enrollment—no matter what it is—can be represented with an unshaded unit rectangle, as shown at right.

Half of the school plans to attend. To show this, divide your rectangle into two equal pieces, as shown below. Then lightly shade and label one of the halves to show the half of the school that is planning to attend.



$$\frac{3}{4} \text{ of } \frac{1}{2} = \frac{3}{8}$$

also

$$\frac{3}{4} \cdot \frac{1}{2} = \frac{3}{8}$$

Three-fourths of the students planning to attend brought back their permission slips to go to the conference. Represent this portion on your rectangle.

What fraction of the whole school will attend the conference?

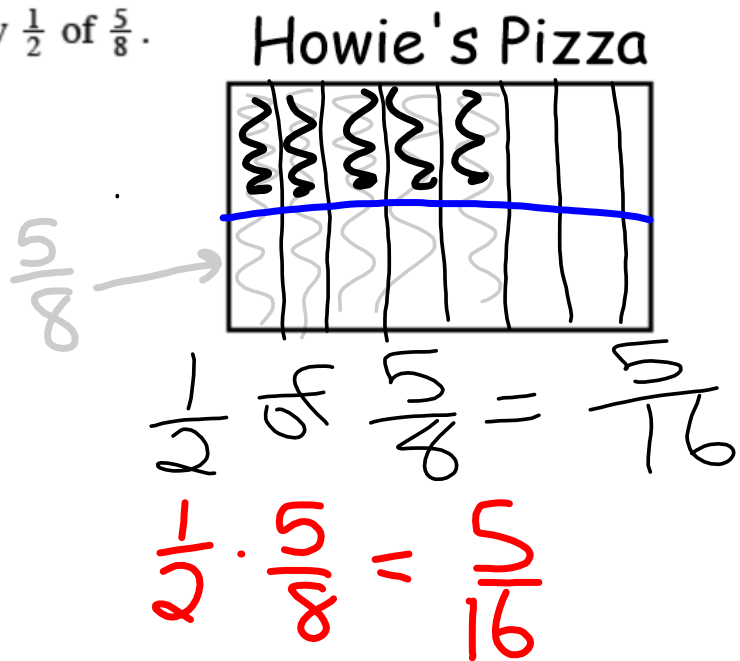
If the total school population is 120 students, how many would attend?

Howie has $\frac{5}{8}$ of a pizza left over from last night's dinner. He loves pizza and eats half of the remaining pizza the next day for breakfast.

- a. Draw your own diagram or use your unit-rectangle resource page to determine what portion of the original pizza Howie ate for breakfast.
- b. Write an equation to show $\frac{1}{2}$ of $\frac{5}{8}$.

$$\frac{1}{2} \text{ of } \frac{5}{8} = \frac{5}{16}$$

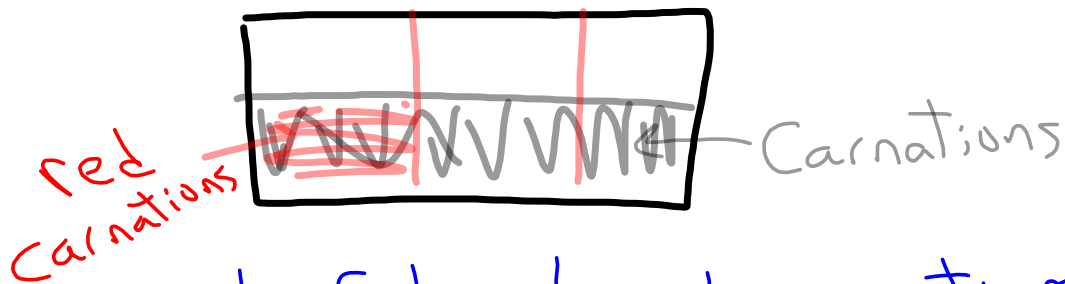
$$\frac{1}{2} \cdot \frac{5}{8} = \frac{5}{16}$$



Joe Dominguez has decided to plant a rectangular flower garden. Joe loves red carnations. He wants 50% of the garden to be planted with carnations, and one-third of the carnations must be red.



- On a unit rectangle, label and shade the fraction of the garden that must be carnations.
 - Now label and shade the fraction of the carnations that must be red.
- c. What fraction of the whole garden must be red carnations?



$$\frac{1}{3} \text{ of } \frac{1}{2} = \frac{1}{6} \text{ red carnations}$$

$$\frac{1}{3} \cdot \frac{1}{2} = \frac{1}{6}$$

$$\frac{7}{8} \cdot \frac{5}{6}$$
$$\frac{35}{48}$$

$$\frac{6}{7} \cdot \frac{6}{7}$$
$$\frac{6}{7} \cdot \frac{6}{7} = \frac{36}{49}$$

$$\frac{15}{22} \cdot \frac{11}{24}$$

Handwritten annotations: 5, 3, 1, 2, 8, and blue cancellation lines. A green arrow points from the 11 in the numerator of the second fraction to the 11 in the denominator of the first fraction.

$$\frac{11}{22} \cdot \frac{15}{24}$$

commutative property

Pre Simplify before multiplication

$$= \frac{5}{2} \cdot \frac{1}{8} = \frac{5}{16}$$

The final result $\frac{5}{16}$ is circled in green.

Pre Simplify before multiplication

$$\begin{array}{c}
 \overset{1}{\cancel{5}} \cdot \overset{2}{\cancel{8}} \\
 \hline
 \underset{3}{\cancel{12}} \cdot \underset{3}{\cancel{15}}
 \end{array}
 = \text{gcf}$$

same

$$\frac{5}{12} \cdot \frac{8}{15} = \frac{40}{180} \cdot \frac{10}{10} = \frac{4}{18} \cdot \frac{2}{2} = \text{gcf}$$

